I. Permittee Information

Permittee Name City of Kirkland	**Permittee Coverage Number** WAR045521
Contact Name Jenny Gaus, Environmental Services Supervisor	**Phone Number** (425) 587-3850
Mailing Address 123 5th Avenue	
City Kirkland	**State** **Zip + 4** WA 98033-6121
Email Adddress jgaus@ci.kirkland.wa.us	

II. Regulated Small MS4 Location

Jurisdiction City of Kirkland	***Entity Type: Check the box that applies*** **County**	**City/Town**	**Other**
		X	
Major Receiving Water(s) Lake Washington (WRIA 8)			

III. Relying on another Governmental Entity

If you are relying on another governmental entity to satisfy one or more of the permit obligations, list the entity and briefly describe the permit obligation(s) they are implementing on your behalf below. ***Attach a copy of your agreement with the other entity to provide additional detail.***

Name of Entity:	**Permit Obligation(s):**
N/A	

IV. Certification

All annual reports must be signed and certified by the responsible official(s) of permittee or co-permittees. Please print and sign this page of the reporting form and mail it (with an original signature) to Ecology at the address noted below. An electronic signature will not suffice.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that Qualified Personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for willful violations.

Name Marilynne Beard Title Assistant City Manager Date 3/30/11

Name _____ Title _____ Date _____

Name _____ Title _____ Date _____

Name _____ Title _____ Date _____

Name _____ Title _____ Date _____

VI. Status Report Covering Calendar Yr: **2010** **Jurisdiction Name:** **City of Kirkland**

PLEASE indicate reporting year and your jurisdiction in Line 1, above.

PLEASE refer to the INSTRUCTIONS tab for assistance filling out this table.

NOTE: Items that have future compliance dates must still be answered to indicate status.
NOTE: For clarification on how to answer questions, place cursor over cells with red flags.
NOTE: Highlighted items indicate requirements that are due in 2010.
PLEASE review your work for completeness and accuracy. Save this worksheet as you go!

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
1.	**Attached** annual written update of Permittee's Stormwater Management Program (SWMP), including applicable requirements under S5.A.2 and S9?	Y			COK SWMP 2011
2.	**Attached** a copy of any annexations, incorporations or boundary changes resulting in an increase or decrease in the Permittee's geographic area of permit coverage during the reporting period, and implications for the SWMP as per S9.E.3?	N/A		Juanita/Finn Hill Kingsgate annexation will become effective on June 1, 2011. Information on this annexation will be included in the 2011 annual report.	
3.	Implemented an ongoing program for gathering, tracking, maintaining, and using information to evaluate SWMP development, implementation and permit compliance and to set priorities? (S5.A.3)	Y			
4.	Began tracking costs or estimated costs of the development and implementation of the SWMP? (*Required* no later than January 1, 2009, S5.A.3.a)	Y			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
5.	SWMP includes an education program aimed at residents, businesses, industries, elected officials, policy makers, planning staff and other employees of the Permittee? (*Required to begin* by February 15, 2009, S5.C.1)	Y			
6.	Distributed appropriate information to target audiences identified in the area served by the MS4? (*Required to begin* by February 15, 2009, S5.C.1.a)	Y			
7.	Tracked the types of public education and outreach activities implemented. (*Required to begin* by February 15, 2009, S5.C.1.c)	Y		see list of activities	2010 Educational activities
7b.	Number of activities implemented:		64	6 different formats	
8.	Measured the understanding and adoption of the targeted behaviors among at least one targeted audience in at least one subject area. (*Required to begin* by February 15, 2009, S5.C.1.b)	Y		Evaluated Natural Yard Care Neighborhoods program through pre- and post-attendance surveys	
9.	Provided opportunities for the public to participate in the decision making processes involving the development, implementation and updates of the Permittee's SWMP? (*Required* by February 15, 2008, S5.C.2.a)	Y			
10.	Developed and implemented a process for public involvement and consideration of public comments on the SWMP? (*Required* by February 15, 2008, S5.C.2.a)	Y			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
11.	Made the most current version of the SWMP available to the public. (S5.C.2.b)	Y			
12.	Posted the SWMP and latest annual report on your website. (S5.C.2.b)	Y			
12b.	NOTE website address in *Attachment* field:	y			Will be posted 3/31/11 at www.ci.kirkland.wa.us
13.	Initiated or implemented an ongoing program to detect and remove illicit connections and illegal discharges into the Permittee's MS4? (*Required* August 19, 2011, S5.C.3)	N/A			
14.	Developed and currently maintain a map of your MS4? (*Required* by February 16, 2011, S5.C.3.a)	N/A			
14b.	Initiated a program to develop and maintain a map of all connections to the MS4 authorized or allowed by the Permittee after the Permit effective date? (S5.C.3.a.ii)	Y			
15.	Map shows the location of all known municipal separate storm sewer outfalls, receiving waters and structural stormwater BMPs owned, operated, or maintained by the Permittee? (*Required* by February 16, 2011, S5.C.3.a.i)	N/A			
16.	Map shows all storm sewer outfalls with a 24 inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems and includes tributary conveyances, associated drainage areas and land use? (*Required* by February 16, 2011, S5.C.3.a.i)	N/A			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
17.	Map shows geographic areas served by the Permittee's MS4 that do not discharge stormwater to surface waters? (*Required* by February 16, 2011, S5.C.3.a.iii)	N/A			
18.	Map has been made available upon request? (S5.C.3.a.iv)	N/A			
19.	Developed and implemented regulatory actions necessary to effectively prohibit non-stormwater, illicit discharges into the Permittee's MS4? (*Required* by August 15, 2009, S5.C.3.b)	Y			
20.	Developed and implemented an ongoing program to detect and address non-stormwater illicit discharges, including spills, and illicit connections into the Permittee's MS4? (*Required* by August 19, 2011, S5.C.3.c)	N/A			
21.	Developed procedures for locating priority areas likely to have illicit discharges, including at a minimum: evaluating land uses and associated business/industrial activities present; areas where complaints have been registered in the past; and areas with storage of large quantities of materials that could result in illicit discharges, including spills? (*Required* by August 19, 2011, S5.C.3.c.i)	N/A			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
22.	Implemented field assessment activities, including visual inspection of priority outfalls identified during dry weather, and for the purposes of verifying outfall locations, identified previously unknown outfalls, and detected illicit discharges? (*Required* by August 19, 2011, S5.C.3.c.ii)	N/A			
23.	Prioritized receiving waters for visual inspection? (*Required* by February 16, 2010, S5.C.3.c.ii)	Y			
24.	Conducted field assessments for three high priority water bodies? (*Required* by February 16, 2011, S5.C.3.c.ii)	N/A			
25.	Conducted field assessments on at least one high priority water body? (*Required* annually **after** February 16, 2011, S5.C.3.c.ii)	N/A			
26.	Developed and implemented procedures for characterizing the nature of, and potential public or environmental threat posed by, any illicit discharges found by or reported to the Permittee? (*Required* by August 19, 2011, S5.C.3.c.iii)	N/A			
27.	Developed and implemented procedures for tracing the source of an illicit discharge; including visual inspections, and when necessary, opening manholes, using mobile cameras, collecting and analyzing water samples, and/or other detailed inspection procedures? (*Required* by August 19, 2011, S5.C.3.c.iv)	N/A			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
28.	Developed and implemented procedures for removing the source of the discharge, including notification of appropriate authorities; notification of the property owner; technical assistance for eliminating the discharge; follow-up inspections; and escalating enforcement and legal actions if the discharge is not eliminated? (*Required* by August 19, 2011, S5.C.3.c.v.)	N/A			
29.	Informed public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste? (*Required* by August 19, 2011, S5.C.3.d)	N/A			
30.	Distributed appropriate information to target audiences identified pursuant to S5.C.1? (*Required* by August 19, 2011, S5.C.3.d.i)	N/A			
31.	Publicized a hotline or other local telephone number for public reporting of spills and other illicit discharges? *(Required* by February 15, 2009, S5.C.3.d.ii)	Y			
31b.	Number of hotline calls received:		64		
31c.	Number of follow-up actions taken in response to calls:		64		
32	Maintained a hotline or other reporting number for public reporting of illicit discharges, including spills? (*Required* by February 15, 2009, S5.C.3.d.ii)	Y			
32b.	NOTE hotline number in *Comments* field	y		(425) 587-3800	
33	Tracked the number of illicit discharges, including spills, identified? (*Required* by August 19, 2011, S5.C.3.e)	N/A			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
33b.	Number of illicit discharges identified:		0		
34	Tracked the number of inspections made for illicit connections? (*Required* by August 19, 2011, S5.C.3.e)	N/A			
34b.	Number of inspections:		0		
35	Received feedback from IDDE public education efforts? (*Required* by August 19, 2011, S5.C.3.e)	N/A			
36	**Attached** report on IDDE public education efforts? (*Required* by August 19, 2011, S5.C.3.d, S5.C.3.e)	N/A			
37	Municipal field staff responsible for identification, investigation, termination, cleanup, and reporting of illicit discharges, improper disposal and illicit connections are trained to conduct these activities? (*Required* by August 15, 2009, S5.C.3.f.i)	Y			
37b.	Number of trainings provided:		4		
37c.	Number of staff trained:		1		
38	Provided follow-up training as needed to address changes in procedures, techniques or requirements? (*Required* by August 15, 2009, S5.C.3.f.i)	Y			
38b.	Number of trainings provided:		1		
38c.	Number of staff trained:		1		

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
39	Developed and implemented an ongoing training program on the identification of an illicit discharge/connection, and on the proper procedures for reporting and responding to the illicit discharge/ connection for all municipal field staff, which, as part of their normal job responsibilities, might come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system? (*Required* by February 16, 2010, S5.C.3.f.ii.)	Y			
39b.	Number of trainings provided:		1	1 training per department	
39c.	Number of staff trained:		233	PW, PCD, Parks, Building, Police, Fire	
40	Developed, implemented and enforced a program to reduce pollutants in stormwater runoff to a regulated small MS4 from new development, redevelopment and construction site activities? *(Required* by February 16, 2010, S5.C.4)	Y			
41	Applied stormwater runoff program to all sites that disturb a land area 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale? *(Required* by February 16, 2010, S5.C.4)	Y			
42	Applied stormwater runoff program to private and public development, including roads? *(Required* by February 16, 2010, S5.C.4)	Y			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
43	Applied the Technical Thresholds in Appendix 1 to all sites 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale? (*Required* by February 16, 2010, S5.C.4)	Y			
44	Adopted and implemented regulatory mechanism (such as an ordinance) necessary to address run-off from new development, redevelopment and construction site activities? (*Required* by February 16, 2010, S5.C.4.a)	Y			
45	Retained existing local requirements to apply stormwater controls at smaller sites or at lower thresholds than required pursuant to S5.C.4? (S5.A.4)	Y		The City of Kirkland adopted the 2009 King County Surface Water Design Manual (2009 KCSWDM) for all development sites, even those disturbing less than 1 acre, effective January 1, 2010.	
46	The ordinance or other enforceable mechanism includes the minimum requirements, technical thresholds, and definitions in Appendix 1 (or an equivalent approved by Ecology under the NPDES Phase I Municipal Stormwater Permit) for new development, redevelopment, and construction sites? (*Required* by February 16, 2010, S5.C.4.a.i)	Y			
47	The ordinance or other enforceable mechanism includes exceptions and variance criteria equivalent to those in Appendix 1? (*Required* by February 16, 2010, S5.C.4.a.i., and Section 6 of Appendix 1)	Y			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
48	Were exceptions or variances to the minimum requirements in Appendix 1 granted? (*Required* by February 16, 2010, S5.C.4.a.i., and Section 6 of Appendix 1)	N			
48b.	If so, how many were granted?		0		
49	The ordinance or other enforceable mechanism includes a site planning process and BMP selection and design criteria that, when used to implement the minimum requirements in Appendix 1 (or equivalent approved by Ecology under the Phase I Permit) will protect water quality, reduce the discharge of pollutants to the maximum extent practicable and satisfy the State requirement under Chapter 90.48 RCW to apply all known, available and reasonable methods of prevention, control and treatment (AKART) prior to discharge? *(Required* by February 16, 2010, S5.C.4.a.ii)	Y			
49b.	Cite documentation to meet this requirement in *Attachment* field:	y		Kirkland Municipal Code Chapter 15.52	KMC Chapter 15-52
50	The ordinance or other enforceable mechanism provides the legal authority, through the approval process for new development, to inspect private stormwater facilities that discharge to the Permittee's MS4? (*Required* by February 16, 2010, S5.C.4.a.iii)	Y			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
51	The ordinance or other enforceable mechanism allows non-structural preventive actions and source reduction approaches such as Low Impact Development (LID) Techniques to minimize the creation of impervious surfaces and minimize the disturbance of native soils and vegetation? (*Required* by February 16, 2010, S5.C.4.a.iv)	Y			
52	If the ordinance or regulatory mechanism allows construction sites to apply the **Erosivity Waiver** in Appendix 1, Minimum Requirement #2, does it include appropriate, escalating enforcement sanctions for construction sites that provide notice to the Permittee of their intention to apply the waiver but do not meet the requirements (including timeframe restrictions, limits on activities that result in non-stormwater discharges, and implementation of appropriate BMPs to prevent violations of water quality standards) to qualify for the waiver? (If waiver is allowed, the qualification is *required* by February 16, 2010, S5.C.4.a.v)	N/A			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
53	Developed and implemented a permitting process to address runoff from new development, redevelopment and construction site activities with plan review, inspection, and enforcement capability? *(Required* by February 16, 2010, S5.C.4.b)	Y			
54	Applied permitting process to all sites that disturb a land area 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale? (*Required* by February 16, 2010, S5.C.4.b)	Y			
55	Reviewed **Stormwater Site Plans** for new development and redevelopment projects? (*Required* by February 16, 2010, S5.C.4.b.i)	Y			
55b.	Number of site plans reviewed during the reporting period:		76		
56	Inspected, prior to clearing and construction, all known development sites that have a high potential for sediment transport as determined through plan review based on definitions and requirements in Appendix 7 **Determining Construction Site Sediment Potential**? (*Required* by February 16, 2010, S5.C.4.b.ii)	Y			
56b.	Number of qualifying sites inspected prior to clearing and construction during the reporting period:		76		

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
57	Inspected construction-phase stormwater controls at all known permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls? (*Required* by February 16, 2010, S5.C.4.b.iii)	Y			
57b.	Number of sites inspected during the construction phase for the reporting period:		15	12 sites less than 1 acre in size, and 3 sites 1 acre or greater in size	
58	Enforced as necessary based on the inspection at new development and redevelopment projects? (*Required* by February 16, 2010, S5.C.4.b.iii)	Y			
58b.	Number of enforcement actions taken during the reporting period:		0	Internal notice of correction process used, formal code enforcement actions not needed	
59	Inspected qualifying permitted development sites upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater controls such as stormwater facilities and structural BMPs? (*Required* by February 16, 2010, S5.C.4.b.iv and v)	Y			
59b.	Number of qualifying sites known during the reporting period:		0	Rules in effect 01/01/2010, no permiteed projects finished under new regs by Dec 2010	
59c.	Number of qualifying sites inspected during the reporting period:		0	Rules in effect 01/01/2010, no permiteed projects finished under new regs by Dec 2010	

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
60	Verified a maintenance plan is completed and responsibility for maintenance is assigned for qualifying projects? (*Required* by February 16, 2010, S5.C.4.b.iv)	Y			
61	Enforced regulations as necessary based on the inspection? (*Required* by February 16, 2010, S5.C.4.b.iv)	Y			
61b.	Number of enforcement actions taken during the reporting period:		0	Internal notice of correction process used, formal code enforcement actions not needed	
62	Developed and implemented an enforcement strategy to respond to issues of non-compliance with the regulations for qualifying projects? (*Required* by February 16, 2010, S5.C.4.b.vi)	Y			
63	Did the Permittee choose to allow construction sites to apply the **Erosivity Waiver** in Appendix 1, Minimum Requirement #2? (S5.C.4.b.vii)	N			
63b.	If yes, how many waivers were allowed ?		0		
64	Developed and implemented a long-term operation and maintenance (O&M) program for post-construction stormwater facilities and BMPs? (*Required* by February 16, 2010, S5.C.4.c)	Y			
65	Adopted an ordinance or other regulatory mechanism that clearly identifies the party responsible for maintenance, requires inspection of facilities and establishes enforcement procedures? (*Required* by February 16, 2010, S5.C.4.c.i)	Y			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
66	Inspected post-construction stormwater controls, including structural BMPs, at new development and redevelopment projects? (*Required* by February 16, 2010, S5.C.4.c)	Y			
66b.	Number of sites inspected during the reporting period:		0	Rules in effect 01/01/2010, no permiteed projects finished under new regs by Dec 2010	
66c.	Number of structural BMPs inspected during the reporting period:		0	Rules in effect 01/01/2010, no permiteed projects finished under new regs by Dec 2010	
66d.	Number of enforcement actions taken during the reporting period:		0	Rules in effect 01/01/2010, no permiteed projects finished under new regs by Dec 2010	
67	Established maintenance standards that are as protective, or more protective, of facility function as those specified in Chapter 4 of Volume V of the **2005 Stormwater Management Manual for Western Washington**? (*Required* by February 16, 2010, S5.C.4.c.ii)	Y			
68	Performed timely maintenance as per S5.C.4.c.ii? *(Required* by February 16, 2010, S5.C.4.c.ii)	Y			
68b.	**Attached** documentation of any maintenance delays. *(Required* by February 16, 2010, S5.C.4.c.ii)	N/A			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
69	Established program to annually inspect all stormwater treatment and flow control facilities (other than catch basins) permitted by the Permittee according to S5.C.4.b. unless there are maintenance records to justify a different frequency? (*Required* by February 16, 2010, S5.C.4.c.iii)	Y			
70	If using reduced inspection frequency, **Attached** documentation as per S5.C.4.c.iii? (*Required* by February 16, 2010, S5.C.4.c.iii)	N/A			
71	Inspected all new stormwater treatment and flow control facilities owned or operated, including catch basins, for new residential developments that are a part of a larger common plan of development or sale, every 6 months during the period of heaviest house construction (i.e., 1 to 2 years following subdivision approval) to identify maintenance needs and enforce compliance with maintenance standards as needed? (*Required* by February 16, 2010, S5.C.4.c.iv)	Y			
71b.	Number of facilities inspected during the reporting period:		0	Rules in effect 01/01/2010, no permiteed projects under performance bond by Dec 2010	

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
72	Implemented a procedure for keeping records of inspections and enforcement actions by staff, including inspection reports, warning letters, notices of violations, other enforcement records, maintenance inspections and maintenance activities? (*Required* by February 16, 2010, S5.C.4.d)	Y			
73	Provided copies of the **Notice of Intent for Construction Activity** and **Notice of Intent for Industrial Activity** to representatives of proposed new development and redevelopment? (S5.C.4.e)	Y			
74	All staff responsible for implementing the program to control stormwater runoff from new development, redevelopment, and construction sites, including permitting, plan review, construction site inspections, and enforcement were trained to conduct these activities? (*Required* by February 16, 2010, S5.C.4.f)	Y			
74b.	Number of trainings provided:		1		
74c.	Number of staff trained:		8		
75	Developed and implemented an operations and maintenance (O&M) program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations? (*Required* by February 16, 2010, S5.C.5)	Y			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
76	Adopted maintenance standards as protective, or more protective, of facility function as those specified in Chapter 4 of Volume V of the 2005 *Stormwater Management Manual for Western Washington* ? (*Required* by February 16, 2010, S5.C.5.a)	Y			
77	Performed timely maintenance as per S5.C.5.a.ii? (*Required* by February 16, 2010, S5.C.5.a.ii)	Y			
77b.	**Attached** documentation of any maintenance delays. (*Required* by February 16, 2010, S5.C.5.a.ii)	N/A			
78	Designed a program to annually inspect and maintained all stormwater treatment and flow control facilities (other than catch basins)? (*Required* by February 16, 2010, S5.C.4.c.iii)	Y			
78b.	Number of known facilities:		0	Rules in effect 01/01/2010, no permiteed projects finished under new regs by Dec 2010	
78c.	Number of facilities inspected during the reporting period:		0	will have all facilities inspected once by August 2011 per Permit Requirements.	
79	If using reduced inspection frequency, **Attached** documentation as per S5.C.5.a.ii? (*Required* by February 16, 2010, S5.C.5.b)	N/A			
80	Conducted spot checks of stormwater facilities after major storms? (*Required* by February 16, 2010, S5.C.5.c)	Y			
80b.	Number of known facilities:		311		
80c.	Number of facilities inspected during the reporting period:		128		

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
81	Inspected municipally owned or operated catch basins at least once before the end of the Permit term? (*Required* by February 16, 2010, S5.C.5.d)	Y		Achieved annual inspection rate of 95% by December 31, 2010.	
81b.	Number of known catch basins:		9336		
81c.	Number of inspections:		2048		
81d.	Number of catch basins cleaned:		2048		
82	Established and implemented practices to reduce stormwater impacts associated with runoff from streets, parking lots, roads or highways owned or maintained by the Permittee, and road maintenance activities conducted by the Permittee? *(Required* by February 16, 2010, S5.C.5.f)	Y			
83	Established and implemented policies and procedures to reduce pollutants in discharges from all lands owned or maintained by the Permittee and subject to this Permit, including but not limited to: parks, open space, road right-of-way, maintenance yards, and stormwater treatment and flow control facilities? *(Required* by February 16, 2010, S5.C.5.g)	Y			
84	Implemented an operations and maintenance (O&M) program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations? (Required by February 16, 2010, S5.C.5.h.)	Y			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
84b.	Number of trainings provided:		1		
84c.	Number of staff trained:		58		
85	Implemented a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee in areas subject to this Permit that are not required to have coverage under the Industrial Stormwater General Permit? *(Required* by February 16, 2010, S5.C.5.i)	Y		SWPPP implemented in May, 2010 per G20 letter and subsequent letter notifying Ecology of compliance.	
86	Is there an approved Total Maximum Daily Load (TMDL) applicable to stormwater discharges from a MS4s owned or operated by the Permittee?	N			
87	Complied with the specific requirements identified in Appendix 2? (S7.A)	N/A			
88	**Attached** status report of TMDL implementation? (S7.A)	N/A			
89	Where monitoring was required in Appendix 2, did you conduct the monitoring according to an approved Quality Assurance Project Plan? (S7.A)	N/A			
90	Took appropriate action to correct or minimize discharges into or from the MS4 which may constitute a threat to human health, welfare, or the environment? (G3)	Y			

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
90b.	**Attached** a summary of the status of implementation of any actions taken pursuant to S4.F and the status of any montioring, assessment, or evaluation efforts conducted during the reporting period? (S4.F.3.d)	N/A			
91	Notified Ecology of the failure to comply with the permit terms and conditions within 30 days of becoming aware of the non-compliance? (G20)	Y		G20 letter re. Stormwater Pollution Prevention Plan for City Maintenance shops submitted on 2/17/2010. Compliance subsequently achieved in May, 2010.	
92	Notified Ecology immediately in cases where the Permittee becomes aware of a discharge from the Permittees MS4 which may cause or contribute to an imminent threat to human health or the environment? (G3)	Y			
93	**Attached** a summary of identified barriers to the use of low impact development (LID) and measures to address the barriers (Required to be submitted by March 31, 2011, S9.E.4.a)	Y			LID Barrier Table

Question		Y/N/ NA	#	Comments (50 word limit)	Name of Attachment & Page #, if applicable
94	**Attached** a report describing LID practices currently available and that can be reasonably implemented, potential or planned non-structural actions and LID techniques to prevent stormwater impacts, goals and metrics to identify, promote, measure LID; and schedules to require and implement non-structureal and LID techniques on a broader scale (Required to be submitted by March 31, 2011, S9.E.4.b)	Y			SW LID Practices Report

VII. Information Collection, BMP Evaluation, and Monitoring

Complete Part A for all annual reports.
NOTE: Please note in Row 1 of the table if you have no information to report.
NOTE: Please limit your entries to 255 characters per cell. You may include additional information in your Supplemental Documentation attachment and reference it below with the page number.

A. Information Collection

	Briefly describe any stormwater monitoring, studies, or type of information collected and analyzed during the reporting period. (S8.B.1)	Who/how to contact for additional information?
1.	Juanita Basin Retrofitting Analysis - Ecology grant to King County w/ Kirkland as partner	Mark Wilgus, King County WLRD, (206) 263-6324 mark.wilgus@kingcounty.gov
2.	B-IBI samples collected on Juanita and Forbes Creeks	Jenny Gaus, Kirkland (425) 587-3850 jgaus@ci.kirkland.wa.us
3.		
4.		
5.		
6.		

VII. Information Collection, BMP Evaluation, and Monitoring

Complete Part B for all annual reports.

B. SWMP Evaluation (S8.B & S9)

You are required to assess the appropriateness of the BMPs you have selected to implement your SWMP. This evaluation is necessary to evaluate whether the MEP standard set by the permit is protective of water quality in your receiving water bodies. This assessment may be entirely qualitative. Answer **NA** if you are not yet implementing BMPs for a component of the SWMP. (S8.B.2 and S9)

	Question	Y/N/NA	Comments (50 word limit)
1.	Are the BMPs selected and implemented for Public Outreach appropriate to minimize pollutants in the MS4 to the MEP?	Y	The City of Kirkland implements a variety of BMPs for public education, since not everyone will respond to one format. Formats for 2010 educational activities were presentations, site restoration activities, workshops, outreach booth at local events, newsletter, and utility bill inserts. The public outreach program is adequate to reduce stormwater pollution.
2.	Are the BMPs selected and implemented for Public Involvement appropriate to minimize pollutants in the MS4 to the MEP?	Y	The City of Kirkland provides opportunities for the public to participate and comment on our SWMP. The public involvement program is adequate to reduce stormwater pollution.
3.	Are the BMPs selected and implemented for Illicit Discharge Detection and Elimination appropriate to minimize pollutants in the MS4 to the MEP?	N/A	The City of Kirkland did not fully implement the IDDE program in 2010. The IDDE program will be implemented in 2011 and assessed next year.
4.	Are the BMPs selected and implemented for Construction Stormwater Pollution Prevention appropriate to minimize pollutants in the MS4 to the MEP?	Y	City of Kirkland development program is successful in reducing stormwater pollution. Staff have been trained to review and inspect construction stormwater pollution prevention BMPs.
5.	Are the BMPs selected and implemented for Post-Construction Runoff Management appropriate to minimize pollutants in the MS4 to the MEP?	Y	City of Kirkland stormwater inspection program is succesful in reducing stormwater pollution, and it includes enforcement procedures when necessary.
6.	Are the BMPs selected and implemented for Good Housekeeping for Municipal Operations appropriate to minimize pollutants in the MS4 to the MEP?	Y	The City of Kirkland maintenance program for city facilities includes adequate BMPs to reduce stormwater pollution.

VII. Information Collection, BMP Evaluation, and Monitoring

Complete Part C for all annual reports.

C. Changes in BMPs or objectives (S8.B)

If any of the BMPs or objectives is being changed, list the old BMP and objective, the new BMP and objective, and a justification for the change below. (S8.B.2., and S9)

NOTE: You may choose to attach additional documentation justifying Changes in BMPs or objectives. Note such attachments in the *Justification for change* field.

	Old BMP	Old Objective	New BMP	New Objective	Justification for Change
1	N/A - there have been no significant changes to program BMPs in 2010.				
2					
3					
4					
5					
6					
7					

VII. Information Collection, BMP Evaluation, and Monitoring

D. Preparation for future, long-term monitoring

Complete section D for the fourth annual report only.

	Question	Y/N/NA	Comments (50 word limit)	Name of Attachment? Page Number?
1.	Identified outfalls or conveyances for long-term stormwater monitoring? (S8.C.2.a)	Y	Two outfalls identified: (Site 1) outfall into Totem Lake, and (Site 2) a 24" concrete pipe that outfalls into Juanita Creek.	
1b.	**Attach** site maps and descriptions. (S8.C.2.a)	y		2011 Monitoring Plan, pages 11-14
2.	Identified at least two questions for SWMP effectiveness monitoring and developed monitoring plans? (S8.C.2.b)	Y		
2b.	**Attach** the proposed questions and monitoring plans for SWMP effectiveness monitoring. (S8.C.2.a.ii)	y		2011 Monitoring Plan, pages 7-9
3.	Monitoring plan developed for each question? (S8.C.1.b.iii)	Y		
3b.	**Attach** a copy of the monitoring plan.	y		2011 Monitoring Plan
4.	Identified sites in preparation for future, long-term monitoring? (S8.C.1.a., and S8.C.2.b)	Y	Two sites identified: (1) Totem Lake Commercial Area (82 acres), and (2) High-Density Residential Area in Juanita (55 acres).	
4b.	**Attach** a summary of the status of site identification for long-term stormwater monitoring; proposed questions for SWMP effectiveness monitoring; and status of developing the SWMP effectiveness monitoring plans.	y		2011 Monitoring Plan

City of Kirkland 2010 Educational Activities

Topic	Intended Audience	Format	Number of attendees/ Number of impressions	Date(s)	Notes	Number of Activities
Water quality education	Students	Classroom presentations	~30 per class	1/1/10-12/31/10	47 presentations	47
Mulching & invasive removal	Students	Volunteer restoration	21	1/14/10	Site maintenance @ Juanita Beach Park, Environmental Adventure School	1
Water quality protection	General public	Reuse Recycle Conserve newsletter	All utility customers	4/2010, 10/2010		2
Mulching & invasive removal	General public	Volunteer restoration	20	5/1/10	Site maintenance @ Juanita Beach Park	1
Mulching & invasive removal	General public	Volunteer restoration	33	5/22/10	Site maintenance @ Everest Park	1
Juanita Creek workshop	Streamside homeowners	Workshop	13	5/25/10		1
Mulching & invasive removal	Students	Volunteer restoration	19	6/4/10	Site maintenance @ Everest Park, Environmental Adventure School	1
Pet waste, water quality	Dog owners	Outreach booth/pledge	~50	6/16/10	Wednesday Market	1
Pet waste	Dog owners	Outreach booth/pledge	~300	7/24/10	Go Dog Go Canine Festival	1
Mulching & invasive removal	Bank of America employees	Volunteer restoration	20	9/25/10	Site maintenance @ Everest Park	1
Mulching & invasive removal	General public	Volunteer restoration	8	10/2/10	Site maintenance @ Everest Park	1
Natural Yard Care Neighbors	Homeowners	Lecture/ Presentations	~82 per night	10/12/10, 10/19/10, 10/26/10	Natural Yard Care	3
Invasive removal & planting	General public	Volunteer restoration	22	11/6/10	Site maintenance @ Juanita Beach Park	1
Invasive removal & planting	General public	Volunteer restoration	30	11/20/10	Site maintenance @ Everest Park	1
Adopt a storm drain	General public	Utility bill insert	All utility customers	Fall 2010		1

Number of activities for 2010 = 64

Chapter 15.52
SURFACE WATER MANAGEMENT

Sections:

Article I. Surface Water Utility Purpose and Responsibilities

Article II. Requirements for Development Activities

Article III. Water Quality and Flood Protection

Article IV. Inspection and Enforcement

Article I. Surface Water Utility Purpose and Responsibilities

15.52.010 Surface water utility created—Responsibilities.

There is hereby created and established, pursuant to Chapters 35A.80 and 35.67 RCW, a storm and surface water utility to be known as the “Kirkland surface water utility.” All references to “the utility” in this chapter refer to the Kirkland surface water utility. The utility will have primary authority and responsibility for carrying out the city’s comprehensive drainage and storm sewer plan, including responsibilities for planning, design, construction, use, maintenance, inspection, administration, and operation of all city storm and surface water facilities; establishing standards for design, construction, and maintenance of improvements on private property where these might affect storm and surface water management; and to establish programs and regulations to assure the quality of the water in such systems, to minimize the chance of flooding, and to provide for the enforcement of the provisions of this code. The director of public works shall be the administrator of the utility. The administrator of the utility shall formulate and propose to the city council for adoption by ordinance a system of rates and charges for services of the utility. To the extent required by law, rates charged shall be uniform for the same class of customers or services. (Ord. 3711 § 4 (part), 1999)

15.52.020 Purpose.

The city council finds that this chapter is necessary to promote sound development policies and construction procedures which respect and preserve the city's watercourses; to minimize water quality degradation and control of sedimentation of creeks, streams, ponds, lakes, and other water bodies; to protect the life, health, and property of the general public; to preserve and enhance the suitability of waters for contact recreation and fish habitat; to preserve and enhance the aesthetic quality of the waters; to maintain and protect valuable ground water quantities, locations, and flow patterns; to insure the safety of city roads and rights-of-way; and to decrease drainage-related damages to public and private property. (Ord. 3711 § 4 (part), 1999)

15.52.030 Comprehensive drainage and storm sewer plan.

A comprehensive drainage and storm sewer plan shall be developed by the city for review and adoption by the city council. Such a plan may include basin-specific or city-wide recommendations for regulations, procedures, and programs. Such regulations, procedures and programs may include but are not limited to capital projects, public education and enforcement activities, operation and maintenance of city storm and surface water facilities, and land use management regulations to be recommended for adoption by ordinance for managing surface and storm water management facilities. Once adopted by the city council, elements of the comprehensive drainage and storm sewer plan pertaining to new development and redevelopment projects shall be incorporated into the standard plans. (Ord. 3711 § 4 (part), 1999)

15.52.040 Work contracted out.

The director of public works may arrange to have work that would be done by the utility performed by a private party or contracted out when it is determined that it would be economically beneficial to do so. (Ord. 3711 § 4 (part), 1999)

Article II. Requirements for Development Activities

15.52.050 Applicability—Storm water plan required.

All developers taking any of the following actions or applying for any of the following permits and/or approvals will be required to submit for approval a storm water plan with their application and/or request, unless exempted by the city engineer or his designee. The storm water plan shall include those items designated in the public works standard plans. Work on the site can only be allowed after approval of the storm water plan.

(1) Creation or alteration of new or additional impervious surfaces;
(2) New development;
(3) Redevelopment;
(4) Building permit;
(5) Subdivision approval;
(6) Short subdivision approval;
(7) Commercial, industrial, or multifamily site plan approval;
(8) Planned unit development;
(9) Development within or adjacent to critical areas;
(10) Rezones;
(11) Conditional use permit;
(12) Substantial development permit required under Chapter 90.58 RCW (Shoreline Management Act);
(13) Land surface modification permit. (Ord. 3711 § 4 (part), 1999)

15.52.060 Design and construction standards and requirements.

(a) The standard plans as defined in Section 15.04.340 shall include requirements for temporary erosion control measures, storm water detention, water quality treatment and storm water conveyance facilities that must be provided by all new development and redevelopment projects. These standards shall meet or exceed the thresholds, definitions, minimum requirements, and exceptions/variances criteria found in Appendix I of the Western Washington Phase II Municipal Stormwater Permit, the 2009 King County Surface Water Design Manual, and the City of Kirkland Addendum to the 2009 King County Surface Water Design Manual as presently written or hereafter amended.

(b) Unless otherwise provided, it shall be the developer's and property owner's responsibility to design, construct, and maintain a system which complies with the standards and minimum requirements as set forth in the standard plans.

(c) In addition to providing storm water quality treatment facilities as required in this section and as outlined in the standard plans, the developer and/or property owner shall provide source control BMPs as described in Volume IV of the 2005 Stormwater Management Manual for Western Washington, such as structures and/or a manual of practices designed to treat or prevent storm water pollution arising from specific activities expected to occur on the site. Examples of such specific activities include, but are not limited to, carwashing at multifamily residential sites and oil storage at auto repair businesses.

(d) The city will inspect all permanent storm water facilities prior to final approval of the relevant permit. All facilities must be clean and fully operational before the city will grant final approval of the permit. A performance bond may not be used to obtain final approval of the permit prior to completing the storm water facilities required under this chapter.

(e) Adjustment Process. Any developer proposing to adjust the requirements for, or alter design of, a system required as set forth in the standard plans must follow the adjustment process as set forth in the standard plans.

(f) Other Permits and Requirements. It is recognized that other city, county, state, and federal permits may be required for the proposed action. Further, compliance with the provisions of this chapter when developing and/or improving land may not constitute compliance with these other jurisdictions' requirements. To the extent required by law, these other requirements must be met. (Ord. 4214 § 1, 2009: Ord. 3711 § 4 (part), 1999)

15.52.070 City acceptance of new storm water facilities.

(a) The city will release the maintenance bond and accept for maintenance new residential storm water facilities constructed under an accepted permit as listed in Section 15.52.050 that meet the following conditions:

(1) An inspection by the director or designee has determined that the storm water facilities are functioning as designed;

(2) The storm water facilities have had at least two years of satisfactory operation and maintenance;

(3) The storm water facility, as designed and constructed, conforms to the provisions of the chapter;

(4) All easements and tract dedications required by this chapter, entitling the city to properly access, operate and maintain the subject drainage facility, have been recorded with the King County office of records and elections, and a copy has been conveyed to the city;

(5) Agreements between the property owner and maintenance contractor, if required, have been submitted to and approved by the city;

(6) For nonstandard drainage and water quality facilities, an operation and maintenance manual, including a schedule detailing the suggested seasonal timing and frequency of maintenance, has been submitted to and accepted by the city;

(7) A complete and accurate set of reproducible mylar as-builts, computer files of plans, and microfiche of plans has been received and accepted by the city.

(b) City Acceptance of New Nonresidential Storm Water Facilities. The city will release the maintenance bond for new nonresidential storm water facilities that meet all except items (4) and (6) in subsection (a) of this section. (Ord. 3711 § 4 (part), 1999)

15.52.080 Bonds and irrevocable license to enter.

(a) Prior to commencing construction on any project disturbing greater than one thousand square feet of land area that meet conditions for a sensitive site as set forth in the standard plans, the applicant must post an erosion control bond using the same procedures as provided in Chapter 175 of the Kirkland Zoning Code. The nature of the bond must permit the city to obtain the proceeds of the bond immediately upon request.

(1) The bond must be in an amount sufficient to cover the cost of corrective work on or off the site performed specifically for the given project. Before the city releases the bond, the applicant must do the following:

(A) Construct drainage facilities required in the storm water plan;

(B) Receive final approval of the storm water system from the city of Kirkland; and

(C) Pay all required fees.

(2) All applicants shall post a maintenance bond using the same procedures as provided in Chapter 175 of the Kirkland Zoning Code to ensure maintenance of installed storm water facilities for two years from the date of final approval of the storm water facilities. Before the city will release the bond, the storm water facilities must meet the requirements of Section 15.52.070.

(b) Prior to final approval of the storm water facilities, the property owner of all nonresidential storm water facilities shall submit, as described in Chapter 175 of the Kirkland Zoning Code, an irrevocable license to enter the property for the purposes of inspection. The following language must be included in the irrevocable license to enter:

(1) A statement that the property owner is to be responsible for the maintenance of storm water facilities on the property;

(2) A statement granting the director or designee the right to enter the property for the purposes of inspecting the storm water facilities; and

(3) A statement that the director shall have the authority to order repair or cleaning of the storm water facilities if the owner does not take action to conduct this work or if the site poses a threat to public health and safety. (Ord. 3711 § 4 (part), 1999)

Article III. Water Quality and Flood Protection

15.52.090 Illicit discharges and connections.

(a) Prohibition of Illicit Discharges. No person shall throw, drain, or otherwise discharge, cause or allow others under its control to throw, drain or otherwise discharge into the municipal storm drain system and/or surface and ground waters any materials other than storm water. Illicit discharges are prohibited and constitute a violation of this chapter. Examples of prohibited contaminants include, but are not limited to, the following:

(1) Trash or debris.

(2) Construction materials.

(3) Petroleum products including but not limited to oil, gasoline, grease, fuel oil and heating oil.

(4) Antifreeze and other automotive products.

(5) Metals in either particulate or dissolved form.

(6) Flammable or explosive materials.

(7) Radioactive material.

(8) Batteries.
(9) Acids, alkalis, or bases.
(10) Paints, stains, resins, lacquers, or varnishes.
(11) Degreasers and/or solvents.
(12) Drain cleaners.
(13) Pesticides, herbicides, or fertilizers.
(14) Steam cleaning wastes.
(15) Soaps, detergents, or ammonia.
(16) Swimming pool or spa filter backwash.
(17) Chlorine, bromine, or other disinfectants.
(18) Heated water.
(19) Domestic animal wastes.
(20) Sewage.
(21) Recreational vehicle waste.
(22) Animal carcasses.
(23) Food wastes.
(24) Bark and other fibrous materials.
(25) Lawn clippings, leaves, or branches.
(26) Silt, sediment, concrete, cement or gravel.
(27) Dyes.
(28) Chemicals not normally found in uncontaminated water.
(29) Any other process-associated discharge except as otherwise allowed in this section.
(30) Any hazardous material or waste not listed above.

(b) Allowable Discharges. The following types of discharges shall not be considered illicit discharges for the purposes of this chapter unless the director determines that the type of discharge, whether singly or in combination with others, is causing or is likely to cause pollution of surface water or groundwater:

(1) Diverted stream flows.
(2) Rising ground waters.
(3) Uncontaminated ground water infiltration – as defined in 40 CFR 35.2005(20).
(4) Uncontaminated pumped ground water.
(5) Foundation drains.
(6) Air conditioning condensation.
(7) Irrigation water from agricultural sources that is commingled with urban storm water.
(8) Springs.
(9) Water from crawl space pumps.
(10) Footing drains.
(11) Flows from riparian habitats and wetlands.
(12) Discharges from emergency fire fighting activities.

(c) Conditional Discharges. The following types of discharges shall not be considered illicit discharges for the purpose of this chapter if they meet the stated conditions, or unless the director determines that the type of discharge, whether singly or in combination with others, is causing or is likely to cause pollution of surface water or groundwater:

(1) Potable water, including water from water line flushing, hyperchlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges shall be dechlorinated to a concentration of 0.1 ppm or less, pH-adjusted, if necessary and in volumes and velocities controlled to prevent resuspension of sediments in the storm water system.
(2) Lawn watering and other irrigation runoff are permitted but shall be minimized.

(3) Dechlorinated swimming pool discharges. These discharges shall be dechlorinated to a concentration of 0.1 ppm or less, pH-adjusted, if necessary and in volumes and velocities controlled to prevent resuspension of sediments in the storm water system.

(4) Street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents are permitted if the amount of street wash and dust control water used is minimized. At active construction sites, street sweeping must be performed prior to washing the street.

(5) Non-storm water discharges covered by another NPDES permit; provided, that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations; and provided, that written approval has been granted for any discharge to the storm drain system.

(d) Prohibition of Illicit Connections.

(1) The construction, use, maintenance, or continued existence of illicit connections to the storm drain system are prohibited and constitute a violation of this chapter.

(2) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

(3) A person is considered to be in violation of this section if the person connects a line conveying sewage to the MS4, or allows such a connection to continue.

(e) Implementation of structural BMPs shall be required if operational BMPS are not effective at reducing or eliminating an illicit discharge. Guidance for design of structural BMPs is provided in Volume IV of the 2005 Stormwater Management Manual for Western Washington, herein incorporated by reference. (Ord. 4200 § 19, 2009: Ord. 3711 § 4 (part), 1999)

15.52.100 Source control best management practices.

Any person causing or allowing discharge to a public drainage facility, natural drainage system, surface and storm water, or ground water shall control contamination in the discharge by implementing appropriate source control BMPs, as described in Volume IV of the 2005 Stormwater Management Manual for Western Washington. Failure to implement such practices shall constitute a violation of this chapter. Guidance on designing and implementing BMPs is provided in the standard plans. (Ord. 4200 § 20, 2009: Ord. 3711 § 4 (part), 1999)

15.52.110 Water quality standards.

The city of Kirkland hereby adopts by reference the water quality standards established under the authority of Chapter 90.48 RCW and contained within Chapter 173-201A WAC as presently written or hereafter amended. (Ord. 3711 § 4 (part), 1999)

15.52.120 Operation and maintenance of storm water facilities.

(a) Standards for maintenance of storm water facilities existing on public or private property within the city of Kirkland are contained in Appendix A of the 2009 King County Surface Water Design Manual and the City of Kirkland Addendum to the 2009 King County Surface Water Design Manual. For facilities which do not have maintenance standards, the property owner shall develop a maintenance standard. Any maintenance agreement submitted and approved by the city through the permit process shall supersede maintenance requirements contained in the 2009 King County Surface Water Design Manual and the City of Kirkland Addendum to the 2009 King County Surface Water Design Manual.

(b) No person shall cause or permit any drainage facility on any public or private property to be obstructed, filled, graded, or used for disposal of debris. Any such activity constitutes a violation of this chapter.

(c) Any modification of an existing drainage facility must be approved and permitted by the city. Failure to obtain permits and approvals or to violate conditions thereof for any such alteration constitutes a violation of this chapter.

(d) The city will maintain all elements of the storm drainage system beginning at the first catch-basin within the public right-of-way, and in easements or tracts dedicated to and accepted by the city. All other facilities, including, but not limited to, nonresidential storm water facilities and roof downspout drains and driveway drains serving single-family residences, shall be maintained by the property owner.

(e) Maintenance of Nonresidential Storm Water Facilities by Owners.

(1) Any person or persons holding title to a nonresidential property for which storm water facilities have been required by the city of Kirkland shall be responsible for the continual operation, maintenance, and repair of said storm water facilities in accordance with the criteria set forth in Appendix A of the 2009 King County Surface Water Design Manual and the City of Kirkland Addendum to the 2009 King County Surface Water Design Manual. For facilities which do not have maintenance standards, the property owner shall develop a maintenance standard.

(2) For nonresidential storm water facilities, failure to meet the maintenance requirements specified in Appendix A of the 2009 King County Surface Water Design Manual and the City of Kirkland Addendum to the 2009 King County Surface Water Design Manual constitutes a violation of this chapter, and shall be enforced against the owner(s) of the subject property served by the storm water facility.

(f) City Acceptance of Existing Residential Storm Water Facilities. The city may accept for maintenance those storm water facilities serving residential developments existing prior to the effective date of the ordinance codified in this chapter that meet the following conditions:

(1) The storm water facilities serve more than one individual house or property;

(2) An inspection by the director has determined that the storm water facilities are functioning as designed;

(3) The storm water facilities have had at least two years of satisfactory operation and maintenance, unless otherwise waived by the director;

(4) An inspection by the director has determined that the storm water facilities are accessible for maintenance using existing city equipment;

(5) The person or persons holding title to the properties served by the storm water facilities must submit a petition containing the signatures of the title holders of more than fifty percent of the lots served by the storm water facilities requesting that the city maintain the storm water facilities;

(6) All easements entitling the city to properly access, operate and maintain the subject storm water facilities have been conveyed to the city and have been recorded with the King County office of records and elections;

(7) The person or persons holding title to the properties served by the storm water facilities shows proof of the correction of any defects in the drainage facilities, including provision of maintenance access, as required by the director.

(g) Disposal of waste from maintenance activities shall be conducted in accordance with the Minimum Functional Standards for Solid Waste Handling, Chapter 173-304 WAC; guidelines published by the Washington State Department of Ecology for disposal of waste materials from storm water maintenance activities; and, where appropriate, the Dangerous Waste Regulations, Chapter 173-303 WAC. (Ord. 4214 § 2, 2009: Ord. 3711 § 4 (part), 1999)

Article IV. Inspection and Enforcement

15.52.130 Inspection and sampling.

(a) Inspections for compliance with the provisions of this chapter shall be allowed as follows:

(1) Construction and Development Inspection. The director or designee shall have access to any site for which a permit as listed in Section 15.52.050 has been issued, during regular business hours, for the purpose of review of erosion control practices and storm water facilities, and to insure compliance with the terms of such permit. Applicants for any such permit shall agree in writing, as a condition of issuance thereof, that such access shall be permitted for such purposes. Inspection procedures shall be as outlined in Section 15.52.130(b).

(2) Inspection for Cause. Whenever there is cause to believe that a violation of this chapter has been or is being committed the director or designee is authorized to inspect the property during regular business hours, and at any other time reasonable in the circumstances. Inspection procedures shall be as outlined in Section 15.52.130(b).

(3) Inspection for Maintenance and Source Control Best Management Practices. The director or designee may inspect storm water facilities in order to ensure continued functioning of the facilities for the purposes for which they were constructed, and to ensure that maintenance is being performed in accordance with the standards of this chapter and any maintenance schedule adopted during the plan review process for the property. The director also may enter the site for the purposes of observing source control best management practices. The property owner or other person in control of the site shall allow any authorized representative of the director or designee access during regular business hours, or at any other time reasonable in the circumstances, for the purpose of inspection, sampling, and records examination.

(b) Inspection Procedure. Prior to making any inspections, the director or designee shall present identification credentials, state the reason for the inspection and request entry of the owner or other person having charge or control of the property, if available, or as provided below.

(1) If the property or any building or structure on the property is unoccupied, the director or his designee shall first make a reasonable effort to locate the owner or other person(s) having charge or control of the property or portions of the property and request entry.

(2) If, after reasonable effort, the director or his designee is unable to locate the owner or other person(s) having charge or control of the property, and has reason to believe the condition of the site or of the storm water drainage system creates an imminent hazard to persons or property, the inspector may enter.

(c) Water sampling and analysis for determination of compliance with this chapter shall be allowed as follows:

(1) Sample Collection. When the director has reason to believe that a violation exists or is occurring on a property, the director shall have the authority to set up on the site such devices as are necessary to conduct sampling, inspection, compliance monitoring, or flow measuring operations.

(2) Sample Analysis. Analysis of samples collected during investigation of potential violations shall be analyzed by a laboratory certified by the State Department of Ecology as competent to perform the required analysis using standard practices and procedures.

(3) Cost of Sample Collection and Analysis. If it is determined that a violation of this chapter exists on the site, the owner of the property shall pay the city's actual costs for collecting samples and for laboratory analysis of those samples. If it is found that a violation does not exist, the city will pay such charges. (Ord. 3711 § 4 (part), 1999)

15.52.140 Enforcement, violations and penalties.

(a) The provisions set forth in this section shall apply to all violations of this chapter or the standard plans. In addition to the listed enforcement options, the city may also pursue any other lawful civil, criminal or equitable remedy or relief. At the director of public works' discretion, the choice of enforcement option taken and the severity of any penalty shall be based on the nature of the violation, the damage or risk to the public or to public resources, and/or the degree of bad

faith of the persons subject to the enforcement action. Enforcement options are cumulative and shall not be deemed exclusive.

(1) Nuisance. Any structure, condition, act or failure to act which violates any provision of this chapter shall be, and the same is declared to be, unlawful and a public nuisance, and may be abated using the procedures of Chapter 11.24 of this code as currently written or hereafter amended or as otherwise allowed by law.

(2) Order to Cease Activity. The director or designee shall have the authority to order immediate cessation of any activity that is in violation of this chapter whether occurring on public or private property.

(A) Posting and Notice. The director or designee shall prominently post this order at the subject location and shall make reasonable attempts to send this order on to the property owner, the person in charge of the property, or the person causing the activity to be conducted or the improvement erected or altered.

(B) Effect. When an order to cease activity has been posted on the subject location, it is a violation for any person with actual or constructive knowledge of the order to conduct the activity or do the work covered by the order until such time as the director or designee has removed or authorized removal of the order. If an order to cease activity is violated, the director or designee may issue a notice of civil infraction under subsection (a)(4) of this section.

(C) Appeal. An order to cease activity may be appealed in like manner as a notice of civil infraction under subsection (a)(4) of this section. If a notice of civil infraction has also been issued and appealed, the appeals shall be consolidated for hearing.

(3) Notice of Violation. If the public works director or assignee determines that any structure, condition, act or failure to act exists that is in violation of this chapter, he/she may issue a notice of violation. This notice will specifically indicate:

(A) The name and address of the property owner or other person to whom the notice of violation is directed;

(B) The street address or description sufficient for identification of the location where the violation has occurred or is occurring;

(C) A description of the violation and a reference to the provision or provisions of this chapter being violated; and

(D) A statement of the action required to be taken to correct the violation as determined by the public works director and a date or time by which correction is to be completed.

(E) A statement that a monetary penalty in an amount per day for each violation as specified by subsection (c) of this section shall be assessed against the person to whom the notice of violation is directed for each and every day, or portion of a day, on which the violation continues following the date set for correction.

(F) Notice to Property Owner and Responsible Party. The public works director or designee shall:

(i) Leave a copy of this notice with the occupant or responsible party or post it in a conspicuous place on the subject property; and

(ii) Send a copy of the notice by certified mail to the owner of the subject property; and

(iii) Extension. Upon written request received prior to the correction date or time, the public works director or designee may extend the date set for correction for good cause. The public works director or designee may consider substantial completion of the necessary correction or unforeseeable circumstances which render completion impossible by the date established as good cause.

(4) Notice of Civil Infraction.

(A) General. The public works director or designee may cause a notice of civil infraction to be issued in either of the following circumstances:

(i) There is a violation of a posted order to cease activity; or

(ii) If, after the time specified in a notice of violation, the corrections specified in the notice of violation have not been completed, and a violation persists.

(B) Issuance. The notice of civil infraction will be issued to the owner of the property and to the responsible party, if the violation exists on private property, or to the party responsible for the activity or condition if the violation exists on public property.

(i) Notwithstanding the provisions of subsections (a)(2) and (a)(3) of this section, the public works director or designee may issue a notice of civil infraction without having issued an order to cease activity when a repeated violation occurs within a six-month period of time or otherwise at the director's or designee's discretion.

(ii) A notice of civil infraction represents a determination that a civil infraction has been committed. The determination is final unless appealed as provided in this chapter.

(C) Content. The following shall be included in the notice of civil infraction.

(i) The name and address of the property owner or other persons to whom the notice of civil infraction is directed;

(ii) The street address or a description sufficient for identification of the building, structure, premises, or land upon or within which the violation has occurred or is occurring;

(iii) A description of the violation and a reference to that provision or provisions of this chapter which has been violated;

(iv) A statement that the monetary penalty in the amount per day for each violation as specified in subsection (c) of this section is assessed against the person to whom the notice of civil infraction is directed for each and every day, or portion thereof, during which the violation continues beyond the date or time established for correction in the notice of violation; and

(v) A statement that the person to whom the notice of civil infraction was directed must complete correction of the violation and may pay the monetary penalty imposed to the city clerk or may appeal the notice of civil infraction as provided in subsection (a)(4)(E) of this section.

(D) Service of Notice. The public works director or designee shall serve the notice of civil infraction upon the person to whom it is directed, either personally or by mailing a copy of the notice of civil infraction by certified mail, postage prepaid, return receipt requested, to such person at his/her last known address or by posting the notice of civil infraction conspicuously on the affected property or structure. The person who effected personal service shall make proof of service at the time of service by a written declaration under penalty of perjury declaring the time and date and the manner in which service was made.

(E) Appeal to Hearing Examiner.

(i) A person to whom a notice of civil infraction is directed may appeal the notice of civil infraction, including the determination that a violation exists, or may appeal the amount of any monetary penalty imposed to the hearing examiner.

(ii) A person may appeal the notice of a civil infraction by filing a written notice of appeal with the department of public works within seven calendar days from the date of service of the notice of civil infraction.

(iii) The monetary penalty for a continuing violation does not accrue during the pendency of the appeal; however, the hearing examiner may impose a daily monetary penalty from the date of service of the notice of civil infraction if he finds that the appeal is frivolous or intended solely to delay compliance.

(iv) The hearing before the hearing examiner shall be conducted as follows:

a. The office of the hearing examiner shall give notice of the hearing before the hearing examiner to the appellant seventeen calendar days before such hearing.

b. The hearing examiner shall conduct a hearing on the appeal pursuant to the rules of procedure as provided by the Administrative Procedure Act, Chapter 34.05 RCW. The city and the appellant may participate as parties in the hearing and each may call witnesses. The city shall have the burden of proof by a preponderance of the evidence that a violation has occurred.

(F) Action of Hearing Examiner.

(i) The hearing examiner shall determine whether the city has proven by a preponderance of the evidence that a violation has occurred and shall affirm, vacate, suspend, or modify the amount of any monetary penalty imposed by the notice of civil infraction with or without written conditions.

(ii) The hearing examiner shall consider the following in making his/her determination:

a. Whether the intent of the appeal was to delay compliance; or

b. Whether the appeal is frivolous; or

c. Whether there was a written contract or agreement with another party which specified the securing by the other party of the applicable permit or approval from the city; or

d. Whether the appellant exercised reasonable and timely effort to comply with applicable development regulations; or

e. Any other relevant factors.

(G) Notice of Decision. The hearing examiner shall mail a copy of his or her decision to the appellant by certified mail, postage prepaid, return receipt requested.

(H) Judicial Review. The decision of the hearing examiner may be reviewed pursuant to the standards set forth in Chapter 36.70C RCW in King County superior court. The land use petition must be filed within twenty-one calendar days of the issuance of the final land use decision by the hearing examiner. For more information on the judicial review process for land use decisions, see Chapter 36.70C RCW.

(I) Criminal Penalty. Any willful violation of an order issued pursuant to this section for which a criminal penalty is not prescribed by state law is a misdemeanor.

(5) Criminal. Any willful violation of the provisions of this chapter is deemed a misdemeanor unless a more exacting charge is allowed by law.

(b) Damages. Any person, firm, corporation, or association or any agent thereof who violates any of the provisions of this chapter shall be liable for all damages to public or private property arising from such violation. If the city repairs or replaces the damaged property, the actual cost to the city for such repair or replacement shall be assessed against the responsible party and shall be due and payable within ten days of the date of written notice of the same. Delinquent bills may be collected by a civil action in the Kirkland municipal court or as otherwise allowed by law. If the city obtains judgment, it shall also be entitled to reimbursement for court costs and reasonable attorney's fees expended in the litigation.

(c) Monetary Penalty. The amount of the monetary penalty per day or portion thereof for each violation of this chapter is as follows:

(1) The monetary penalty constitutes a personal obligation of the person to whom the notice of civil infraction is directed. Any monetary penalty assessed must be paid to the city clerk within seven calendar days from the date of service of notice of civil infraction or, if an appeal was filed pursuant to subsection (a)(4)(E) of this section, within seven calendar days of the hearing examiner's decision. Payment of a monetary penalty does not relieve a violator of the duty to correct the violation.

(2) The city attorney, on behalf of the city, is authorized to collect the monetary penalty by use of appropriate legal remedies, the seeking or granting of which shall neither stay nor terminate accrual of additional per diem monetary penalties so long as the violation continues.

(3) In the event of failure to appear at a hearing provided in subsection (a)(4)(E) of this section, the hearing examiner shall assess the monetary penalty prescribed and a penalty of twenty-five dollars.

(4) In the event of a conflict between this chapter and any other provision of this code of city ordinances providing for a civil penalty, this chapter shall control.

Payment of a monetary penalty pursuant to this chapter does not relieve a person of the duty to correct the violation as ordered by the director of public works.

(5) The following monetary penalties apply for each violation, for each and every day or portion of a day on which the violation continues following the date and time set for correction:

(A) First violation is one hundred dollars.
(B) Second violation is two hundred dollars.
(C) Third violation is three hundred dollars.
(D) Additional violation in excess of three is five hundred dollars.

(d) No Personal Liability for Acts or Omissions. Each person responsible for the enforcement or administration of this chapter and each member of a committee, board, commission or council responsible for making any decision or recommendation under this chapter is relieved from any personal liability whatsoever from any injury to person or property as a result of his/her act or omission in the good faith discharge of his/her responsibilities. If the person or member is sued for acts or omissions occurring in the good faith discharge of his/her responsibilities, the city shall defend and provide legal representation to the person or member until final disposition of the proceedings. The city shall reimburse the person or member for any costs incurred in defending against alleged liability for the acts or omissions of the person or members in the good faith discharge of his/her duties. (Ord. 4200 § 21, 2009: Ord. 3711 § 4 (part), 1999)

15.52.150 Conflicts.

If any provisions of any other chapter of the Kirkland Municipal Code, including the Zoning Code (Title 23 of the Kirkland Municipal Code), conflict with this chapter, that which provides more environmental protection shall apply unless specifically provided otherwise in this chapter. (Ord. 3711 § 4 (part), 1999)

15.52.160 Severability.

If any provision of this chapter or its application to any person or property is held invalid, the remainder of the chapter or the application of the provision to other persons or property if allowed shall not be affected. (Ord. 3711 § 4 (part), 1999)

Identified barriers to the use of low impact development (LID) within the area covered by the permit and measures to address these barriers in the City of Kirkland.	
Barriers to LID use	**Potential Measures to Address Barriers**
City staff time and availability to promote LID are limited. Staff resources have been reduced.	City staff promotes LID as time allows. LID fliers are at kiosk, LID information is on City website, and LID structure details have been added to the Pre-Approved Plans.
Staff are directed by leadership to address higher-priority requirements first, such as Annexation, Critical Areas Ordinances, Shoreline Management Act requirements, and NPDES compliance.	Request could be made to Council to make stormwater LID a priority.
Perception that counter staff, permit reviewers, planning staff, inspectors, and enforcement staff lack adequate training to provide guidance, review permit applications, and inspect LID facilities.	Public Works reviewers and inspectors have attended stormwater LID training classes. Other staff is becoming more knowledgable. SW Utility will could set aside funding for other staff to attend training.
City staff availability to maintain LID facilities is limited. It takes more time to weed a rain garden several times per year than to pump out a vault once per year. And it takes a different skill set to maintain LID versus maintaining traditional stormwater structures.	City requires a private maintenance agreement for LID elements installed with private development, even if the element is located in the public right-of-way. City is investingating funding options for maintenance of storm LID on public projects.
Zoning and Municipal Code changes needed take staff time.	City has implemented Green Codes project, and is currently changing zoning and municipal codes to remove LID barriers and encourage LID.
LID facilities are small and spread out, making tracking and inspection challenging.	City could set up program for repeated inspections of LID on private and public property. This involves staff time for data management, inspections, maintenance, or code enforcement needed to require property owners to maintain.
LID installation was not required on City projects, so private sector does not have many examples to follow on private projects.	All City projects look at the feasibility of stormwater LID techniques, and implement if feasible. A majority of city projects now include storm LID techniques.
Creating LID incentives would increase voluntary LID implementation, but there are not many incentives.	City has implemented Green Codes project, and is changing zoning and municipal codes to remove LID barriers and encourage LID with incentives.
Some engineers are unwilling to deviate from standard stormwater designs.	Staff on Green Building Team offer a free green building consultation to developers and engineers early in a project phase (prior to pre-application meeting). This meeting focuses on sustainable building, and includes emerging stormwater LID techniques. LID is now required so more engineers will have to learn how to design them.

There is a perception that standard stormwater designs are cheaper. Some developers think LID will cost more up front in design and construction time, and will require longer city staff review time.	Staff on Green Building Team offer a free green building consultation to developers and engineers early in a project phase (prior to pre-application meeting). This meeting focuses on sustainable building, and includes emerging stormwater LID techniques. Staff could provide cost analysis information that may show a savings if traditional stormwater element (like a vault) does not have to be built.
Lack of working knowledge on LID from private engineers and contractors.	Staff provides technical expertise on stormwater LID elements to engineers and contractors during design and consturction. As more LID facilities are required, engineers and contractors will learn how to design and construct them.
LID is not "cookie cutter" engineering like tanks and vaults; the same LID facilities do not work in every situation. There are some LID designs available, but specifics rely on actual site conditions so hard to provide "standard LID design" to developers.	Staff provides technical expertise on stormwater LID elements to engineers and contractors during design and consturction.
Many developers are unwilling to spend extra money for soil tests. Traditional stormwater structures do not require soil testing.	City is in the process of creating a LID Feasibility Guide that will include a map with soil information and feasible storm LID elements for each location. The guide will be available later in 2011.
LID construction materials are sometimes more expensive than traditional stormwater materials: e.g., porous concrete and pervious asphalt.	Staff can provide cost analysis information showing savings if a traditional stormwater element (like a vault) does not have to be built.
Maintenance needs and costs are not always easily determined.	By monitoring the LID facilities that have been installed, City staff will track maintenance needs and cost.
There is a perception that LID is difficult to implement in a built-out city, and retrofits are challenging.	By requiring every project to consider LID, more projects are installing LID elements and this will help change this perception.
Zoning lot coverage allowance in city is high, it doesn't leave a lot of open space for LID.	City has implemented Green Codes project (changing zoning and municipal codes for sustainability) and is currently considering reducing lot coverage allowances and/or requiring more open space.
Some LID products installed recently have not held up well (pervious asphalt and porous concrete), enforcing the stereotype that LID products are inferior.	Staff has been monitoring different pervious pavement mixes to look for optimum product, and waiting to add them to our standard details. We added porous concrete sidewalks to our standards in 2010, and anticipate adding more next year.

City of Kirkland

Surface Water Low Impact Development (LID) Practices Report

Rainwater catchment system installed at Lake Washington High School.

Prepared March, 2011

Stacey Rush, Surface Water Utility Engineer

Surface Water LID Practices Report

I. Introduction

This document has been produced to satisfy requirements in the Western Washington Phase II Municipal Stormwater Permit (the Permit). The Permit contains the following requirements related to Stormwater Low Impact Development (SW LID) Practices:

> *A report completed by an individual Permittee or in cooperation with multiple Permittees describing, at a minimum (S9.E.4.b.):*
>
> - *LID practices that are currently available and that can reasonably be implemented within this permit term.*
> - *Potential or planned non-structural actions and LID techniques to prevent stormwater impacts.*
> - *Goals and metrics to identify, promote, and measure LID use.*
> - *Potential or planned schedules for the Permittee(s) to require and implement the non-structural and LID techniques on a broader scale in the future.*

II. LID practices that are currently available and that can reasonably be implemented within this permit term.

When the City of Kirkland (COK) participated in the 2006 Local Regulation Assistance project, recommendations and barriers to implementing SW LID techniques were identified. Implementing the recommendations has been slow, but two actions have significantly increased the use of SW LID practices recently in Kirkland:

- *The creation of a Green Building Team in 2007.* The team includes a member from each development department (Fire & Building, Planning, and Public Works) and seeks out opportunities to increase the amount of sustainable development in Kirkland. Promotion of SW LID practices is included in this program.
- *Adoption and implementation of the 2009 King County Surface Water Design Manual (2009 KCSWDM) in 2010.* Previously SW LID techniques were encouraged but not required, so few were installed. The 2009 KCSWDM requires the feasibility of SW LID techniques be evaluated on all projects that add 2,000ft^2 impervious surface areas or more. This requirement forced the City and applicants to resolve some SW LID barriers, and results in at least one SW LID technique incorporated into most new and redevelopment projects in Kirkland, in both public and private projects.

Specific SW LID practices encouraged by the City of Kirkland are:

- Infiltration
- Dispersion
- Rain Gardens
- Flow-thru biofiltration planter boxes
- Permeable pavement (concrete or asphalt)
- Rainwater harvesting
- Vegetated roof
- Retention of existing native vegetation
- Xeriscape and native plant landscaping
- Amended soil
- Reduction in overall impervious surface coverage on sites

Applicants continually look to the COK to provide technical expertise for design and construction of SW LID techniques on permitted projects. To promote LID practices, the COK has implemented the following:

- A free "Green Building Consultation" is offered to all permit applicants, where staff provides sustainable development information early on in the development process. SW LID options are promoted at this consultation and at development pre-submittal meetings.
- Public Works reviewers and inspectors have attended SW LID training courses enabling them to provide technical assistance to permit applicants.

- COK offers a priority permit review for Green/Sustainable projects (including SW LID). Priority permit review has a shorter review time as an incentive for applicants who are willing to build green.
- A SW LID section has been added to our Public Works Pre-Approved Plans, containing design and construction criteria and details for rain gardens and porous concrete sidewalks. Details and policies for additional SW LID techniques will be added in future years.
- Staff developed worksheets for applicants to complete which makes it easier for them to comply with the SW LID requirement.
- Information on SW LID is provided on our COK website, in kiosks around City Hall, and at the Public Works counter.

The COK is currently modifying the zoning and municipal codes to encourage sustainable development (Green Codes project). This includes changing codes to remove barriers and encourage more SW LID practices. As part of this project, a SW LID feasibility guide and map will be created in 2011. An applicant will be able to use the map to find out specific soil and groundwater information (based on actual soil logs), and look at a list of potential SW LID techniques suitable for their site.

One recurring barrier is the maintenance of SW LID. It takes more time to weed a rain garden several times a year than to pump out a detention tank once per year. It also takes a different skill set to maintain SW LID than traditional SW structures, so it is hard for the COK to have appropriate maintenance staff to maintain SW LID in the public right-of-way. To address the maintenance issue, the COK requires a private maintenance agreement for all SW LID elements installed with private development, even if the element is located in the public right-of-way. The COK has tried to get neighbors involved with the maintenance of SW LID elements installed on City projects, but this has not been successful. Staff is considering using SW utility funds and investigating other options to provide specific maintenance staff to maintain SW LID in the public-right-of-way.

III. Potential or planned non-structural actions and LID techniques to prevent stormwater impacts.

The COK has planned the following non-structural actions and LID techniques to prevent stormwater impacts:

- In 2011 a SW LID Feasibility guide and map will be created. An applicant will be able to use the map to find out specific soil and groundwater information for their site (based on actual soil logs), and look at a list of potential SW LID techniques that would be suitable for their site.
- A SW LID section has been added to our PW Pre-Approved Plans. The City will incorporate the SW LID practices in the revised version of the LID Technical Guidance Manual for Puget Sound (expected to be out in late 2011) into our Public Works Pre-Approved Plans in 2012. Details for additional SW LID techniques and policies will be added in future years.
- The monitoring program for installed SW LID facilities will be expanded. This will involve significant staff time for data management, inspections, maintenance, and code enforcement as needed.
- As more SW LID facilities are constructed, staff will continue to monitor performance and maintenance needs.
- As part of our Green Codes project (changing zoning and municipal codes to encourage sustainability), we are considering reducing the overall impervious surface area allowed for lot coverage. This would result in less stormwater runoff on a site, and allow more room for SW LID techniques.

IV. Goals and metrics to identify, promote, and measure LID use.

The COK has established a monitoring program for installed SW LID facilities. The monitoring allows us to track information on facility performance over time, maintenance needs, and ensures the facilities are not changed or removed by private parties. This program will be expanded in 2011 to help us generate statistics on the increased use of SW LID, and develop additional COK LID goals.

The COK has identified the following metrics for SW LID use:

- Identify the number of SW LID facilities installed each year.
- Track the amount of flow control reduction achieved by LID facilities.
- Track the area receiving water quality treatment from LID facilities.
- Track pervious sidewalk and impervious sidewalk area percentage for capital projects.
- Track the number of SW LID facilities in each drainage basin.

The COK has identified the following goals for SW LID use:

- Provide Green Building Consultations to 95% of applicants requesting the consultations.
- Continue to provide SW LID education as staff time allows.
- Continue to develop SW LID feasibility analysis tools for use by the development community.
- Conduct an LID feasibility analysis on all capital transportation projects.

V. Potential or planned schedules for the Permittee(s) to require and implement the non-structural and LID techniques on a broader scale in the future.

The COK has the planned the following actions to require and implement non-structural and LID techniques on a broader scale in the future:

- In 2011, a SW LID Feasibility guide and map will be created. An applicant will be able to use the map to find out specific soil and groundwater information (based on actual soil logs), and look at a list of potential SW LID techniques that would be suitable for their site. This will help applicants comply with SW LID requirements.
- In 2012, details for additional SW LID techniques will be added to the SW LID section in the COK PW Pre-Approved Plans (which contains design and construction criteria and details for specific SW LID techniques). The City will incorporate the SW LID practices in the revised version of the LID Technical Guidance Manual for Puget Sound (expected to be out in late 2011) into our Public Works Pre-Approved Plans.
- The monitoring program for installed SW LID facilities will be expanded in 2011. This will involve significant staff time for data management, inspections, maintenance, and code enforcement as needed. The monitoring results will help us implement more SW LID techniques.
- The City will implement all SW LID requirements Ecology includes in the next permit cycle.

City of Kirkland
Stormwater Monitoring Plan

Prepared March, 2011

Jenny Gaus, Surface Water Engineering Supervisor

I. Introduction

This document is being produced to satisfy requirements in the Western Washington Phase II Municipal Stormwater Permit (the Permit). The Permit contains the following requirements related to stormwater and stormwater management program effectiveness monitoring:

- *Stormwater Monitoring* (S8.C.1.a) requires permittees to identify sites suitable for monitoring stormwater discharges based on jurisdictional size and land use types, and to set priorities based on stormwater-related pollution problems.
- *Targeted Stormwater Management Program* (SWMP) Effectiveness Monitoring (S8.C.1.b) requires permittees to identify questions monitoring could answer to determine the effectiveness of specific components of the SWMP.

This information is provided to Ecology per the Permit, but implementation of the stormwater monitoring and stormwater program effectiveness plans is not required at this time. Kirkland anticipates that stormwater monitoring and stormwater program effectiveness will be conducted regionally. Arrangements for cost-sharing and other aspects of the monitoring program are currently in development. Please see PSP Stormwater Work Group for further information.

II. Stormwater Monitoring

Phase II communities are not required to conduct monitoring in this permit cycle, but are required to prepare for future monitoring. This is an opportunity to examine existing water quality problems within the city, and to prepare to quantify them in relation to State Water Quality Standards or other metrics.

Kirkland is a city with a population of between 10,000 and 75,000 people, and therefore must do the following per Section S8.C.1.a of the Permit:

iv.Each city having a population between 10,000 and 75,000 shall identify two outfalls or conveyances where stormwater sampling could be conducted. One outfall shall represent commercial land use and the second will represent high-density residential land use.

v. Permittees shall select outfalls or conveyances based on known water quality problems and/or targeted areas of interest for future monitoring. The Permittee shall document:

- Why sites were selected;
- Possible site constraints for installation of and access to monitoring equipment;
- A brief description of the contributing drainage basin including size in acreage, dominant land use, and other contributing land uses;

- Any water quality concerns in the receiving water of each selected outfall or conveyance

II.A Site 1: Totem Lake Commercial Area - Commercial Land Use –

II.A.a Basin Description and Rationale for Site Selection

Site 1 encompasses 82 acres near the intersection of 124th Ave NE and NE 116th Street (Figure 1). The zoning in this sub-basin of the Juanita Creek watershed is almost entirely of commercial and multi-family (Table 1). Land uses generally match zoning, with the exception that some businesses in the commercial and office areas could be more accurately classified as light-industry. This basin drains several high-traffic streets, a portion of I-405, and a portion of the highest traffic volume intersection in the city (NE 124th Street/124th Ave NE).

The sampling location was chosen in general because there is interest in redevelopment of the Totem Lake area. If sampling can identify stormwater quality issues and concerns, these can be addressed by the city and or by city/private partnerships as redevelopment takes place. The specific monitoring site was chosen because it is one of the few stormwater outfalls in the Totem Lake area that is not currently submerged (the level of the lake has risen in recent years, causing flooding and constantly submerged pipes). In addition, this site matches the commercial land use criteria almost perfectly.

Table 1: Kirkland Site 1 Zoning

Zoning Designation	Percentage of Basin	Comments
Commercial	66%	Actual land-use may include some light industry
Low-Density Residential (Ecology designation is High-Density Residential)	10%	Kirkland defines Low-Density Residential as a lot size of 7200 square feet which qualifies as High-Density Residential according to Ecology guidelines
High-Density Residential (Ecology designation is multi-family residential)	9%	Mostly apartment complexes
I-405 right-of-way	8%	I-405 right-of-way is not included in city zoning layer, and so does not have a zoning designation
Institutions	5%	Forested hillside at Lake Washington Technical College
Office	2%	Currently in light industrial use

II.A.b Water Quality Concerns

The Juanita watershed has waters listed as Category 5 impaired uses for dissolved oxygen, fecal coliform bacteria, and temperature. There is no monitoring data available for this specific sub-basin, but it contains portions of the highest traffic-volume intersection in the city, many auto-related business, and older retail/commercial areas. These are likely to produce pollutants including oil/grease, nutrients, metals, and suspended solids.

Residents and the City have had water quality concerns about Totem Lake since at least 1989. Stormwater inputs to the lake have been found to have chemistry similar to runoff from other urban areas in very limited sampling (Entranco Engineers, 1989). Although wetlands to the west of Totem Lake appear to do a good job of removing pollutants from water flowing out of the lake (based on King County water quality data), buildup of toxic materials in the sediment of these areas and in the lake itself is a concern.

The city conducted a study to identify potential pollutant hotspots in 2008. The Site 1 basin showed moderate potential as a pollutant hotspots for overall toxicity, which combined estimated loads for total suspended solids, total PAHs, copper, zinc, and Diazinon (Parametrix, 2008). The only areas ranking higher in terms of cumulative potential toxicity are those with predominantly industrial land uses.

II.A.c Site Constraints

For Site 1, monitoring equipment would be located in a 54"-diameter Type II catch-basin that is in the railroad right-of-way in the northwest portion of the intersection of 124th Ave NE/NE 124th Street/Totem Lake Boulevard (Figure 2). This manhole is approximately 7 feet deep. An autosampler could potentially be hung on the ladder inside the manhole, or could be mounted in a vandal-proof cabinet to the side of the manhole. Parking is available directly adjacent to the manhole, and personnel can open the manhole lid safely without traffic control. Potential site constraints include the following:

- Site could be temporarily unavailable during any construction of a rail or trail system that uses the railroad corridor
- Site access could be reduced when Phase II of the NE 124th Street/124th Avenue widening project is constructed.
- The Port of Seattle currently owns the railroad right-of-way. Gaining permission to place monitoring equipment could be a complicated process. At the same time, the City already has a neighborhood sign on this property, and city storm lines run through it, so some sort of agreement may already be in place for use of this area.

II.B Site 2: High-Density Residential Land Use

II.B.a Basin Description and Rationale for Site Selection

Site 2 encompasses 55 acres in the Juanita watershed. The area is entirely single-family residential with an allowable lot size of 7200 square feet. This site was chosen because it is entirely high-density according to the Ecology definition of 4 houses or greater per acre. In addition, there have been many studies of water quality in Juanita Creek over the years (city King County data). This site would be a good indicator of the impacts of purely residential activities on stormwater.

Table 2: Kirkland Site 2 Zoning

Zoning Designation	Percentage of Basin	Comments
Low-Density Residential (Ecology designation is High-Density residential)	100%	Zoning is for lot size of 7200 square feet, or 6 dwelling units per acre

II.B.b Water Quality Concerns

This sub-basin of the Juanita Creek was developed prior to the advent of water quality treatment requirements. The mainstem of Juanita Creek has water quality impairements and is listed as Category 5 waters for fecal coliform bacteria, dissolved oxygen, and temperature. This sub-basin is likely to have water quality concerns typical of other single-family basins: runoff from various car, pavement, and home washing practices, leaking/dumping of oil from autos, pet waste, septic system failures, fertilizers/herbicides, and metals from roofing materials and moss-prevention chemicals and autos.

II.B.c Site Constraints

Monitoring equipment for Site 2 would be placed near the end of the 24" concrete pipe that outfalls from this sub-basin into Juanita Creek. An autosampler could be placed in a box near the outlet. The property is a city park, and there is ample parking adjacent to the park.

The main site constraint for Site 2 is that the flood level of Juanita Creek may cause a backwater into this pipe during large storm events. If this is the case, sampling equipment could be moved to the first manhole upstream from the outfall. This Type 1 catch-basin is 4 feet deep, and is in the sidewalk adjacent to NE 128th Street. Sampling equipment could be placed in a box on the park property if a way could be found to route tubing under the sidewalk and into the catch-basin. Another possibility would be to install a Type II manhole in this line on park property.

III. Stormwater Program Effectiveness Monitoring

III.A Introduction

The Permit requires that "each city, town and county prepare to conduct monitoring to determine the effectiveness of the Permittee's Stormwater Management Program (SWMP) at controlling stormwater-related problems that are directly addressed by actions in the SWMP" (Permit, Section S8.C.1.b). Kirkland's Draft 2011 SWMP can be viewed at:
http://www.ci.kirkland.wa.us/depart/Public_Works/Storm___Surface_Water.htm

Effectiveness monitoring is intended to ask questions and test hypotheses that could be used to alter and improve the impact that programs have on the quality of Stormwater. Specifically, the Permit states:

This component of the monitoring program shall be designed to answer the following types of questions:
• How effective is a targeted action or narrow suite of actions?
• Is the SWMP achieving a targeted environmental outcome?
ii. No later than December 31, 2010, each city, town and county shall identify at least two suitable questions and select sites where monitoring will be conducted. This monitoring shall include, at a minimum, plans for stormwater, sediment or receiving water monitoring of physical, chemical and/or biological characteristics. This monitoring may also include data collection and analysis of other measures of program effectiveness, problem identification and characterizing discharges for planning purposes.
iii. For each question, the Permittee shall develop a monitoring plan containing the following elements:
• A statement of the question, an explanation of how and why the issue is significant to the Permittee, and a discussion of whether and how the results of the monitoring may be significant to other MS4s.
• A specific hypothesis about the issue or management actions that will be tested.
• Specific parameters or attributes to be measured.
• Expected modifications to management actions depending on the outcome of hypothesis testing.

Implementation of the effectiveness monitoring plan discussed here is not required under the current Permit. Kirkland anticipates that some or all of SWMP effectiveness monitoring will take place through regional cooperation. The Puget Sound Partnership's Stormwater Monitoring Work Group has been working on setting up regional monitoring as it relates to the Permit and to broader questions about the health of Puget Sound. See PSP Stormwater Work Group for further information.

III.B Effectiveness Question 1

Does having a required erosion control inspection before pouring of the foundation for single-family homes produce a measurable reduction in the amount of sediment in runoff throughout the project?

The majority of development in Kirkland is on small (< 1 acre) single-family lots. Developers of subdivisions, which are most commonly 4-6 lots, provide erosion control for construction of roads and utilities. Builders provide erosion control during construction of the houses, and this constitutes the majority of the time that the site is vulnerable to erosion. In addition, single-family houses on isolated lots do not typically have a developer involved in erosion control at all. The City currently conducts erosion control inspection at the following points during construction of single-family homes:

- prior to pouring the foundation,
- prior to final approval of framing, and
- at final occupancy.

Kirkland believes the inspection that is required before the foundation pour is effective at reducing turbidity because construction cannot proceed until requirements associated with this inspection are met. To that end, we propose to test the following **hypothesis**:

Inspection before allowing the foundation pour to proceed is effective in reducing turbidity in stormwater to 25NTU or less.

In order to test this hypothesis, turbidity in stormwater would be tested following the start of construction (i.e. after site is cleared) and before the foundation pour inspection, and then again following the foundation pour inspection. Testing location would be the stormwater outfall in the right of way closest to the project site. Turbidity would be measured using a hand-held turbidimeter with collection of samples for laboratory analysis in cases of readings that are below or above the detection limits of the equipment.

Results of this study would help to determine whether erosion control inspection on smaller properties should be used as a tool to control stormwater pollution. In addition, the specific use of the pre-foundation-pour inspection could be applied in other MS4s if it is found that the high compliance rate produces better stormwater outcomes.

III.C Effectiveness Question 2
Do bi-annual septic system inspections and associated follow-up actions produce measurable reduction in fecal coliform bacteria in Juanita Creek?

There are many septic systems in the Juanita Basin. Although the Permit does not contain specific requirements for inspection of septic systems, it does require tracing and elimination of sources of stormwater pollution as part of the IDDE program required in Section S.C.5….. of the Permit.

Through a 2008 grant from the Department of Ecology, Kirkland has identified certain stormwater outfalls that exhibit high bacteria levels. High bacteria levels have been observed multiple times in the maintstem and tributaries of Juanita Creek since the 1970s (King County, City of Kirkland, 2009). Juanita Creek is on the State list for creation of a TMDL for bacterial contamination, though Kirkland has been working with Ecology to develop a "straight to implementation" process to remove sources of bacteria.

In reviewing data from the 2008 study, Kirkland and King County staff hypothesize that levels up to 1000 cfu/100 ml are produced by wildlife, regrowth in the stream channel, and perhaps washoff of stormwater from impervious surfaces. At levels greater than 1000 cfu/100ml in stormwater or in the creek, we feel that it is more likely that concentrated point sources of human contamination such as illicit discharges, failing septic systems and sewage overflows are the cause of the problem. A bacterial source-tracking project is underway to determine whether contamination is of human or other origin in instances of high fecal coliform bacteria levels. If the origin is found to be human, failing septic systems are a prime suspect as a source of the contamination. In many cases high bacteria levels were observed in Stormwater systems, making this study relevant to the IDDE component of the Phase II NPDES Permit.

Based on the above, we wish to test the following **hypothesis**:

In cases where bacterial contamination is found to be of human origin, routine septic system inspections and associated follow-up actions will bring fecal coliform levels in stormwater down to 1000 cfu/100 ml or less.

We understand that State Water Quality Standards for Class AAA water require fecal coliform bacteria levels to be 100 cfu/100ml or less, but want to pursue this study in the hopes of eliminating the larger and possibly more harmful sources of contamination in Stormwater.

If septic system inspections are found to reduce bacteria levels in stormwater, this would be a relatively inexpensive and effective way to reduce human-source

contamination in streams. If this action if found to make little or no difference in human-source bacteria levels, resources can be redirected to detecting and eliminating other potential sources such as illicit discharges and sewer overflows.

Answering this question would be relevant to many MS4s that have significant numbers of septic systems in their jurisdiction. Septic system inspection and associated follow-up actions are relatively inexpensive methods that may be able to identify sources of contamination more quickly and easily than stormwater outfall screening (especially dry weather outfall screening).

In order to test the above hypothesis, the following monitoring would be conducted:

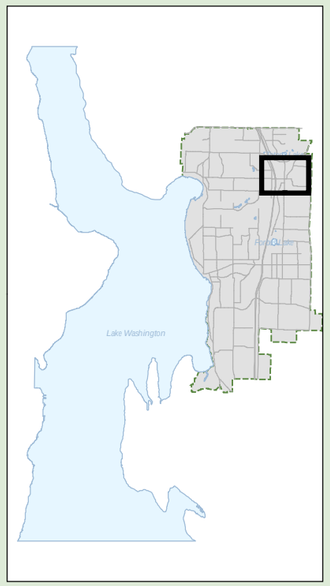
Fecal coliform levels in stormwater flow at stream outfalls along the mainstem of Juanita Creek would be monitored before and 2 years after implementation of a septic system inspection program. Bacteria levels would be tested during both dry weather and wet weather periods, in order to identify both concentrated dry weather overflow of septage in to the Stormwater system, and to identify instances where septage is pushed into the stormwater system as a result of high groundwater flows.

Bibliography

Entranco Engineeres Inc., 1989. *Totem Lake Management Study*. Prepared for the City of Kirkland.

King County, City of Kirkland, 2009. *Investigation of Fecal Coliform Sources in Juanita Creek Basin.* Final Report for Department of Ecology Grant Contract No. C0900063.

Parametrix, 2008. *Stormwater Pollutant Hot Spots Assessment for the City of Kirkland*. Prepared for the City of Kirkland.



Vicinity Map

0 6,900 13,800 20,700

Feet

Kirkland Site 1 Sampling Location

Juanita Creek Watershed

Forbes Creek Watershed

Totem Lake Park

Open Space

S I 405

N I 405

NE 124TH ST

NE 118TH ST

NE 116TH ST

NE 113TH ST

NE 112TH ST

NE 119TH ST

NE 120TH ST

NE 121ST LN

BNSF RR

124TH AVE NE

SLATER AVE NE

128TH AVE NE

129TH LN NE

120TH AVE NE

122ND LN NE

117TH PL NE

Legend

Stream Class

GIS BROWSER FLAG

Streams in Pipe

Open Streams

Site 1 Watershed

SW_Manhole

SW_Main

<all other values>

L_Subtype

Culvert

Pipe

Tank

Vault

0 110 220 330

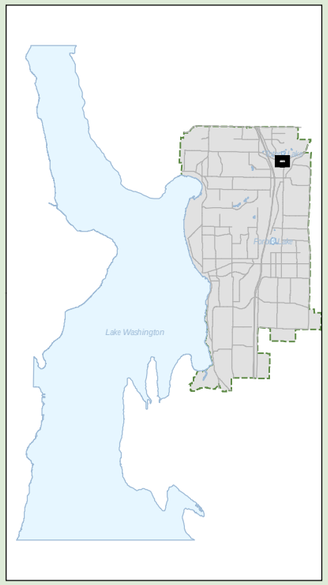
Feet

CITY OF KIRKLAND WASHINGTON

-Print Date: 3/31/2010

-Location: \\SRV-GISF01\Vol1\IT\Work\CM\TemplateFiles\COK\11x17Landscape.mxd

Figure 1: Kirkland Site 1: Juanita Creek - Commercial



Vicinity Map

0 6,900 13,800 20,700

Feet

Legend

Stream Class

GIS BROWSER FLAG

- Streams in Pipe
- Open Streams
- Site 1 Watershed
- SW_Manhole

SW_Main

- <all other values>

L_Subtype

- Culvert
- Pipe
- Tank
- Vault

0 20 40 60

Feet

CITY OF KIRKLAND WASHINGTON

-Print Date: 3/31/2010

-Location: \\SRV-GISF01\Vol1\IT\Work\CM\TemplateFiles\COK\11x17Landscape.mxd

Totem Lake Park

TOTEM LAKE BLVD

BNSF RR

Kirkland Site 1 Sampling Location

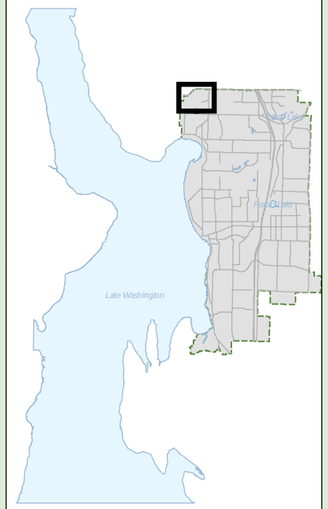
NE 124TH ST

120TH PL NE

124TH AVE NE

130 140 150 160

Figure 2: Kirkland Site 1 Sampling Location



Vicinity Map

0 6,900 13,800 20,700

Feet

Legend

Stream Class

GIS BROWSER FLAG

- Streams in Pipe
- Open Streams
- SW_Manhole

SW_Main

- <all other values>

L_Subtype

- Culvert
- Pipe
- Tank
- Vault

0 1,280

Feet

-Print Date: 3/31/2010

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NE 132ND ST

NE 131ST WAY

95TH PL NE

96TH PL NE

NE 130TH PL

NE 130TH LN

NE 129TH PL

96TH AVE NE

NE 128TH ST

98TH PL NE

Brookhaven Park

NE 127TH PL

Kirkland Site 2 Sampling Location

93RD PL NE

94TH AVE NE

NE 126TH PL

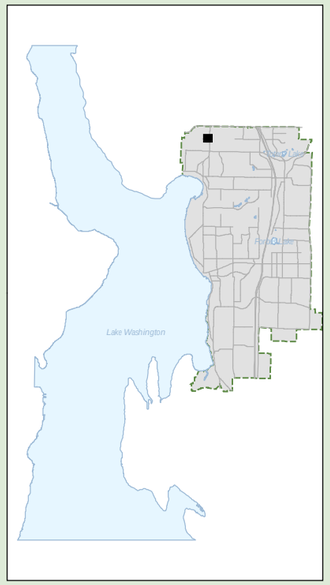
NE 126TH ST

NE 125TH ST

NE 125TH PL

98TH AVE NE

Figure 3: Kirkland Site 2: Juanita Creek - High Density Residential



Vicinity Map

0 6,900 13,800 20,700

Feet

Legend

Stream Class

GIS BROWSER FLAG

- Streams in Pipe
- Open Streams
- SW_Manhole

SW_Main

- <all other values>

L_Subtype

- Culvert
- Pipe
- Tank
- Vault

0 1.5 3

Feet

NE 128TH ST

NE 127TH PL

100TH AVE NE

Brookhaven Park

60

Kirkland Site 2 Sampling Location

-Print Date: 3/31/2010

-Location: \\SRV-GISF01\Vol1\IT\Work\CM\TemplateFiles\COK\11x17Landscape.mxd

Figure 4: Kirkland Site 2 Sampling Location